

Application No.: 10/563,255
Art Unit: 3746

Amendment under 37 CFR §1.116
Attorney Docket No.: 053549

AMENDMENTS TO THE CLAIMS

The listing of claims below replaces all prior versions of claims in the application.

1. (Currently Amended): An evacuation apparatus comprising:
a booster pump to be connected to a vacuum chamber, said booster pump having a
[[]]pair of multistage Roots-type pump rotors; and
a main pump connected to said booster pump, said main pump having a pair of multistage
pump rotors;
wherein said main pump is arranged downstream of said booster pump, and
wherein said booster pump has a pumping speed high enough to increase a pumping
speed of said main pump.

2. (Previously Presented): An evacuation apparatus according to claim 1, wherein each
of said multistage pump rotors has an inlet-side rotor and an outlet-side rotor, and an axial width
of said inlet-side rotor is larger than an axial width of said outlet-side rotor.

3. (Previously Presented): An evacuation apparatus according to claim 1, wherein said
booster pump is started after said main pump is started.

4. (Previously Presented): An evacuation apparatus according to claim 1, wherein a
rotational speed of said multistage Roots-type pump rotors is controlled based on a temperature

of a gas delivered by said evacuation apparatus, a pressure of the gas, a temperature of a rotor casing for housing said multistage Roots-type pump rotors, or electric current flowing into a motor for rotating said Roots-type multistage pump rotors.

5. (Previously Presented): An evacuating apparatus according to claim 1, wherein said booster pump and said main pump are accommodated in a single enclosure.

6. (Previously Presented): An evacuation apparatus according to claim 1, wherein said main pump includes a brushless DC motor.

7. (Withdrawn): A method of operating an evacuation apparatus having a booster pump connected to a vacuum chamber and a main pump connected to the booster pump, the booster pump having a pair of multistage pump rotors, said method comprising:

starting the main pump;

operating the main pump at a rated rotational speed;

starting the booster pump after a predetermined period of time has passed from said starting the main pump;

operating the booster pump at a constant rotational speed; and

when a pressure of a gas in the vacuum chamber is lowered to a predetermined pressure, increasing the rotational speed of the booster pump.

8. (Currently Amended): An evacuation apparatus according to claim 1, wherein said multistage Roots-type pump rotors ~~comprises~~ each of which comprise two-stage Roots-type pump rotors ~~[[each]]~~ having an inlet-side rotor and an outlet-side rotor, and a ratio of an axial width of said inlet-side rotor to an axial width of said outlet-side rotor is in a range of 2:1 to 10:1.

9. (Previously Presented): An evacuation apparatus according to claim 8, wherein the ratio is in a range of 5:1 to 10:1.